Abstract

A network that is architectured to distributively be responsible for remedying failures achieves advantageous operation. This is accomplished by algorithmically and distributively assigning the responsibility for recovery from all failures to different network nodes and by re-routing traffic at the failed point though network elements in close topological proximity to the failed point. Each node maintains an awareness of the spare resources in its neighborhood and pre-plans re-route plans for each of the failures for which it is responsible. It maintains the created re-route plans and, upon detection of a failure, transmits a re-route plan to particular nodes that participate in the re-routing recovery planned for such a failure. Alternatively, it transmits re-route plans to the nodes that need them, and upon detection of a failure, the network node broadcasts an ID of the re-route plan that needs to be executed. Nodes that receive a plan ID that corresponds to a plan that they possess execute the relevant plan. Whenever the spare resources change in a manner that suggests that a re-route plan needs to be revisited, the network node initiates a new re-route preplanning process.